

CLAIMS

What is claimed is:

1. In a first network device, a method of modifying an SCTP association between the first network device and a second network device, the SCTP association including a first set of IP addresses associated with the first network device and a second set of IP addresses associated with the second network device, the method comprising:

establishing the SCTP association between the first network device and the second network device; and

sending an SCTP configuration message from the first network device to the second network device, the configuration message indicating a modification to be made to the SCTP association, thereby enabling the SCTP association to be modified without disconnecting an existing session.

2. The method as recited in claim 1, wherein sending the SCTP configuration message from the first network device to the second network device is performed when a new IP address is assigned to the first network device.

3. The method as recited in claim 1, wherein sending the SCTP configuration message

from the first network device to the second network device is performed when a new network interface card is added to the first network device.

4. The method as recited in claim 1, further comprising:

receiving an SCTP acknowledgement message from the second network device acknowledging receipt of the SCTP configuration message.

5. The method as recited in claim 4, wherein the SCTP acknowledgement message further acknowledges that the SCTP association has been modified corresponding to the SCTP configuration message.

6. The method as recited in claim 4, wherein the SCTP acknowledgement message comprises an SCTP packet including a chunk having a chunk type associated with the SCTP acknowledgement message.

7. The method as recited in claim 1, wherein the first network device is a Mobile Node supporting Mobile IP.

8. The method as recited in claim 1, wherein the SCTP configuration message

indicates that a specified IP address is to be added to the first set of IP addresses in the SCTP association.

9. The method as recited in claim 1, wherein the SCTP configuration message indicates that a specified IP address is to be established as a primary address in the first set of IP addresses in the SCTP association via which to send and receive messages.

10. The method as recited in claim 9, wherein sending the SCTP configuration message from the first network device to the second network device is performed when the first network device determines that the specified IP address provides a better signal than the first set of IP addresses that were previously in the SCTP association.

11. The method as recited in claim 9, wherein the first network device is a Mobile Node, and wherein the specified IP address is an IP address of a network location to which the Mobile Node has roamed.

12. The method as recited in claim 1, wherein the SCTP configuration message

indicates that a specified IP address is to be removed from the first set of IP addresses in the SCTP association.

13. The method as recited in claim 12, wherein sending the SCTP configuration message from the first network device to the second network device is performed when the first network device determines that the specified IP address does not provide an adequate signal.

14. The method as recited in claim 12, wherein the first network device is a Mobile Node, and wherein the specified IP address is an IP address of a network location associated with a prior network location of the Mobile Node.

15. The method as recited in claim 1, wherein the SCTP configuration message includes at least one of an ADD message indicating that a first IP address is to be added to the first set of IP addresses, a SET PRIMARY message indicating that a second IP address is to be established as a primary address in the first set of IP addresses via which to send and receive messages, and a REMOVE message indicating that a third IP address is to be removed from the first set of IP addresses in the SCTP association.

16. The method as recited in claim 15, wherein the first address is the second address.

17. The method as recited in claim 15, wherein an order is specified for performing at least one of the ADD message, the PRIMARY message, and the REMOVE message.

18. The method as recited in claim 1, wherein the first network device is a Mobile Node, the method further comprising:

roaming to a network location;

obtaining a new IP address associated with the new network location;

wherein the SCTP configuration message indicates that the new IP address is to be added to the first set of IP addresses.

19. The method as recited in claim 18, wherein the SCTP configuration message further indicates that one of the IP addresses in the first set of IP addresses is to be removed from the first set of IP addresses.

20. The method as recited in claim 19, wherein the one of the IP addresses to be removed from the first set of IP addresses is a Home Address associated with the Mobile Node.

21. The method as recited in claim 18, wherein the SCTP configuration message further indicates that the new IP address is to be a primary address via which the Mobile Node is to send and receive packets.

22. The method as recited in claim 18, wherein the first set of IP addresses is associated with a single network interface card.

23. The method as recited in claim 1, wherein the SCTP configuration message comprises one or more SCTP packets.

24. The method as recited in claim 1, the method further comprising:
appending a chunk to an SCTP packet, the chunk including the SCTP configuration message.

25. The method as recited in claim 24, wherein the chunk comprises a chunk type associated with the SCTP configuration message.

26. The method as recited in claim 24, wherein the chunk comprises one or more parameters, each of the parameters having a value and an associated parameter type selected from the group consisting of ADD indicating that an IP address indicated by the value is to be added to the first set of IP addresses, REMOVE indicating that the IP address is to be removed from the first set of IP addresses, and SET PRIMARY indicating that the IP address is to be established as a primary address via which the first network device is to send and receive messages.

27. In a second network device, a method of modifying an SCTP association between a first network device and the second network device, the SCTP association including a first set of IP addresses associated with the first network device and a second set of IP addresses associated with the second network device, the method comprising:

establishing the SCTP association between the first network device and the second network device; and

receiving an SCTP configuration message from the first network device, the configuration message indicating a modification to be made to the SCTP association, thereby enabling the SCTP association to be modified without disconnecting an existing session.

28. The method as recited in claim 27, further comprising:

modifying the SCTP association in response to the configuration message.

29. The method as recited in claim 28, wherein the SCTP configuration message indicates a lookup address associated with the SCTP association, the method further comprising:

obtaining the association.

30. The method as recited in claim 29, further comprising:

verifying the association using the lookup address.

31. The method as recited in claim 27, further comprising:

sending an SCTP acknowledgement message from the second network device
acknowledging receipt of the SCTP configuration message.

32. The method as recited in claim 31, wherein the SCTP acknowledgement message
further acknowledges that the SCTP association has been modified corresponding to
the SCTP configuration message.

33. The method as recited in claim 31, wherein the SCTP acknowledgement message
comprises an SCTP packet including a chunk having a chunk type associated with the
SCTP acknowledgement message.

34. The method as recited in claim 27, wherein the first network device is a Mobile
Node supporting Mobile IP.

35. The method as recited in claim 27, wherein the SCTP configuration message
indicates that a specified IP address is to be added to the first set of IP addresses in the

SCTP association.

36. The method as recited in claim 35, further comprising:

 sending a message to one of the first set of IP addresses in the SCTP association.

37. The method as recited in claim 27, wherein the SCTP configuration message indicates that a specified IP address is to be established as a primary address in the first set of IP addresses in the SCTP association via which to send and receive messages.

38. The method as recited in claim 37, further comprising:

 sending a message to the primary address in the first set of IP addresses in the SCTP association.

39. The method as recited in claim 27, wherein the SCTP configuration message indicates that a specified IP address is to be removed from the first set of IP addresses in the SCTP association.

40. The method as recited in claim 27, wherein the SCTP configuration message includes at least one of an ADD message indicating that a first IP address is to be

added to the first set of IP addresses, a SET PRIMARY message indicating that a second IP address is to be established as a primary address in the first set of IP addresses via which to send and receive messages, and a REMOVE message indicating that a third IP address is to be removed from the first set of IP addresses in the SCTP association.

41. The method as recited in claim 40, wherein the first address is the second address.

42. The method as recited in claim 40, wherein an order is specified for performing at least one of the ADD message, the PRIMARY message, and the REMOVE message.

43. The method as recited in claim 27, wherein the first network device is a Mobile Node supporting Mobile IP and the second network device is a Correspondent Node.

44. The method as recited in claim 43, wherein the SCTP configuration message further indicates that one of the IP addresses in the first set of IP addresses is to be removed from the first set of IP addresses.

45. The method as recited in claim 44, wherein the one of the IP addresses to be removed from the first set of IP addresses is a Home Address associated with the Mobile Node.

46. The method as recited in claim 43, wherein the SCTP configuration message further indicates that the new IP address is to be a primary address via which the Mobile Node is to send and receive packets.

47. The method as recited in claim 27, wherein the SCTP configuration message comprises one or more SCTP packets.

48. The method as recited in claim 27, wherein the SCTP configuration message comprises an SCTP packet including a chunk.

49. The method as recited in claim 48, wherein the chunk comprises a chunk type associated with the SCTP configuration message.

50. The method as recited in claim 48, wherein the chunk comprises one or more parameters, each of the parameters having a value and an associated parameter type selected from the group consisting of ADD indicating that an IP address indicated by the value is to be added to the first set of IP addresses, REMOVE indicating that the IP address is to be removed from the first set of IP addresses, and SET PRIMARY indicating that the IP address is to be established as a primary address via which the first network device is to send and receive messages.

51. A first network device adapted for modifying an SCTP association between the first network device and a second network device, the SCTP association including a first set of IP addresses associated with the first network device and a second set of IP

addresses associated with the second network device, comprising:

means for establishing the SCTP association between the first network device and the second network device; and

means for sending an SCTP configuration message from the first network device to the second network device, the configuration message indicating a modification to be made to the SCTP association, thereby enabling the SCTP association to be modified without disconnecting an existing session.

52. A first network device adapted for modifying an SCTP association between the first network device and a second network device, the SCTP association including a first set of IP addresses associated with the first network device and a second set of IP addresses associated with the second network device, comprising:

a processor; and

a memory, at least one of the processor and the memory being adapted for:

establishing the SCTP association between the first network device and the second network device; and

sending an SCTP configuration message from the first network device to the second network device, the configuration message indicating a modification to be made to the SCTP association, thereby enabling the SCTP association to be modified without disconnecting an existing session.

53. A computer-readable medium storing thereon computer-readable instructions for modifying an SCTP association between the first network device and a second network device, the SCTP association including a first set of IP addresses associated with the first network device and a second set of IP addresses associated with the

second network device, comprising:

instructions for establishing the SCTP association between the first network device and the second network device; and

instructions for sending an SCTP configuration message from the first network device to the second network device, the configuration message indicating a modification to be made to the SCTP association, thereby enabling the SCTP association to be modified without disconnecting an existing session.

54. A second network device adapted for modifying an SCTP association between a first network device and the second network device, the SCTP association including a first set of IP addresses associated with the first network device and a second set of IP addresses associated with the second network device, comprising:

means for establishing the SCTP association between the first network device and the second network device; and

means for receiving an SCTP configuration message from the first network device, the configuration message indicating a modification to be made to the SCTP association, thereby enabling the SCTP association to be modified without disconnecting an existing session.

55. A second device adapted for modifying an SCTP association between a first network device and the second network device, the SCTP association including a first set of IP addresses associated with the first network device and a second set of IP addresses associated with the second network device, comprising:

a processor; and
a memory, at least one of the processor and the memory being adapted for:
establishing the SCTP association between the first network device and the
second network device; and

receiving an SCTP configuration message from the first network device, the
configuration message indicating a modification to be made to the SCTP association,
thereby enabling the SCTP association to be modified without disconnecting an
existing session.

56. A computer-readable medium storing thereon computer-readable instructions for
modifying an SCTP association between a first network device and the second
network device, the SCTP association including a first set of IP addresses associated
with the first network device and a second set of IP addresses associated with the
second network device, comprising:

instructions for establishing the SCTP association between the first network
device and the second network device; and

instructions for receiving an SCTP configuration message from the first
network device, the configuration message indicating a modification to be made to the
SCTP association, thereby enabling the SCTP association to be modified without
disconnecting an existing session.